

## Patent Claims:

1. A fire protection means that is to be integrated into a construction element, **characterized in that** the fire protection means comprises at least one hybrid film system in which at least one film is coated with intumescent material.
2. The fire protection means according to Claim 1, **characterized in that** the film system has at least one layer having a high elasticity.
3. The fire protection means according to one or more of the preceding claims, **characterized in that** the film system has at least one adhesive layer that serves for the integration into environments.
4. The fire protection means according to one or more of the preceding claims, **characterized in that** the film system is transparent in the visible spectrum.
5. The fire protection means according to one or more of the preceding claims, **characterized in that** at least one constituent of the film system has a siliceous base.
6. The fire protection means according to one or more of the preceding claims, **characterized in that** the film system has at least one layer in which the content of organic and/or inorganic constituents varies over the thickness of the layer.
7. The fire protection means according to one or more of the preceding claims, **characterized in that** the film system consists of several films that have a content of organic and/or inorganic constituents that differs from each other, at least in part.
8. The fire protection means that is to be integrated into a construction element, **characterized in that** the fire protection means comprises at least two films or film layers that have different chemical compositions and that are transparent at least in sections, whereby at least one of the layers is configured so as to be fire-retardant.

9. A fire protection film on the basis of silicate, **characterized in that** the molar modulus has a molar ratio of  $\text{SiO}_2$  to  $\text{Na}_2\text{O}$  that lies between 2.0 and 6.5, preferably between 3.0 and 5.0.

10. The fire protection film on the basis of silicate, **characterized in that** it contains high-melting oxides or their precursors.

11. The fire protection film according to Claim 10, **characterized in that** the high-melting oxides are present in the form of layer silicates.

12. The fire protection film on the basis of silicate, **characterized in that** it contains Laponite.

13. A fire protection means that can be produced by a continuous cascading method, in which first of all, a film or film layer A is applied and another film or film layer B is applied onto the former, and optionally another film or films and/or film layer or layers C is/are applied, **characterized in that** at least two of the films or film layers A, B and C have different chemical compositions and at least one of the film layers A, B or C is fire-retardant.

14. The fire protection means according to one of Claims 8 or 13, **characterized in that** at least one of the fire-retardant films/film layers has a composition according to one of Claims 9 to 12.

15. The fire protection means according to one of Claims 8 or 13, **characterized in that** at least one of the films/film layers, at a residual moisture between 15% and 35%,

a) contains between 0.5% and 25%, preferably between 7% and 23%, especially between 10% and 23%, in particular between 12% and 23% glycerin, or

b) contains 1.5% to 5% MTEOS or

1.5% to 5% TEOS or

1.0% to 7.5% GPTS or

0.5% to 2.5% surfactant, especially TEGOTENS,

- c) with a glycerin content between 4% and 6%,  
contains 1.5% to 5% MTEOS or  
1.5% to 5% TEOS or  
1.0% to 7.5% GPTS or  
0.5% to 2.5% surfactant, especially TEGOTENS.

16. Fire protection glazing, **characterized in that** it comprises at least one fire protection means according to one or more of Claims 8 or 13 or a fire protection film according to one of Claims 9 to 12.

17. A method for the production of a hybrid transparent fire protection film system, **characterized in that** the film system is produced in a continuous process.

18. The method according to Claim 17, **characterized in that** the method comprises cascading coating processes.

19. The method according to one or both of Claims 7 or 8, **characterized in that** the method comprises thin-film drying.

20. Fire protection glazing, **characterized in that** it comprises at least one fire protection means according to one or more of Claims 1 to 15.